

(12) UK Patent Application (19) GB (11) 2 255 712 (13) A  
(43) Date of A publication 18.11.1992

(21) Application No 9210183.1

(22) Date of filing 12.05.1992

(30) Priority data

(31) 9110675

(32) 17.05.1991

(33) GB

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(51) INT CL<sup>6</sup>

A47L 13/24

(52) UK CL (Edition K)

A4F FD11 FFB126 FFB226 FHX

(56) Documents cited

GB 0730596 A US 4135272 A

(58) Field of search

UK CL (Edition K) A4F, A4K, E2A

INT CL<sup>6</sup> A46B, A47L, F16B

Online databases: WPI

(54) Mopheads

(57) A holder for a mophead comprises a cup-shaped body part 101 and an elongate strap 3 attached at one end to the body part and adjustably engageable, nearer its opposite end, with a retaining device 12 located in a slot 110 in the body part. In use, a bundle of flexible mop strands 2 is clamped between the strap and the body part. The strap 3 and retaining device 12 are provided respectively with cooperating toothed portions whereby the effective length of the strap may be adjusted by drawing the toothed portion of the strap through the slot 110 and over the cooperating toothed portion of the retaining device. A locking member 115 is inserted in the slot 110, after the strap has been drawn tight, to urge the toothed portion of the retaining device firmly into locking engagement with the teeth on the strap.

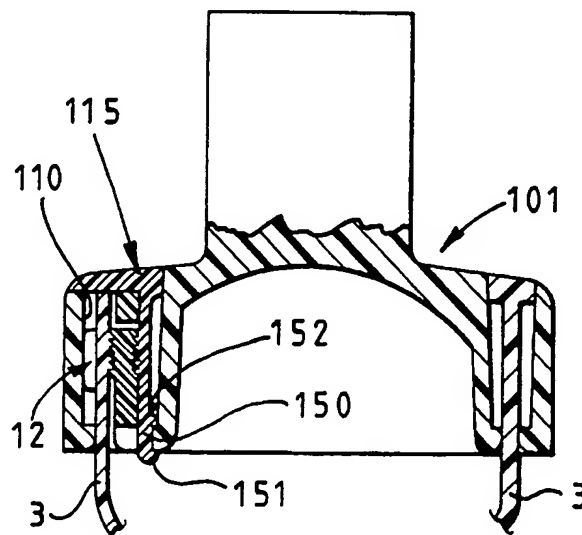


FIG 12

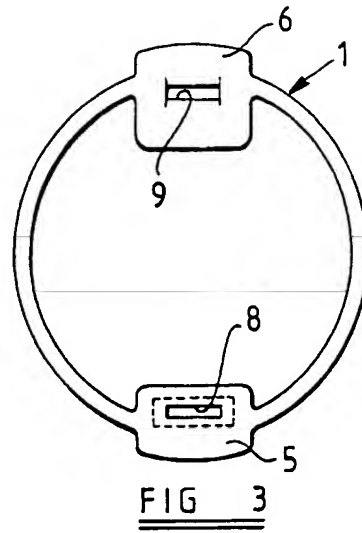
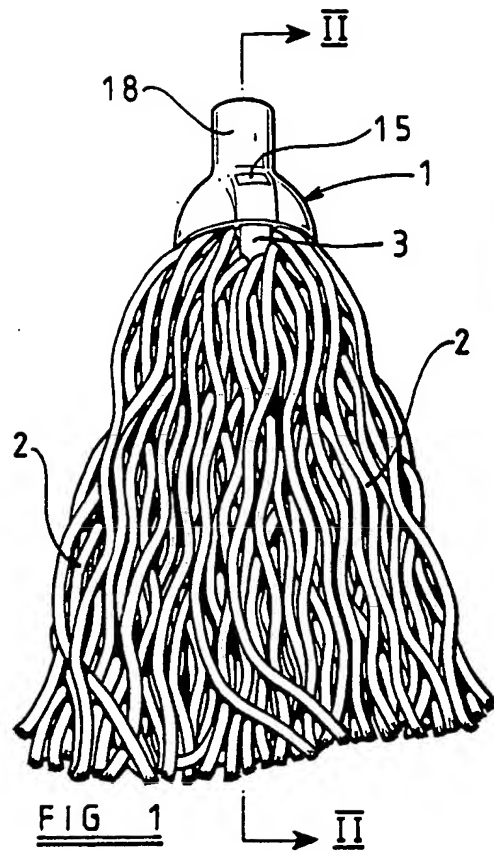
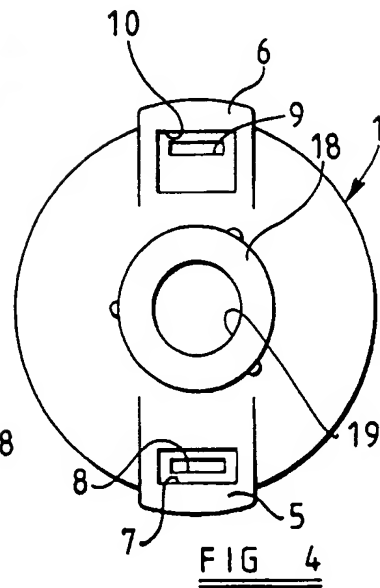
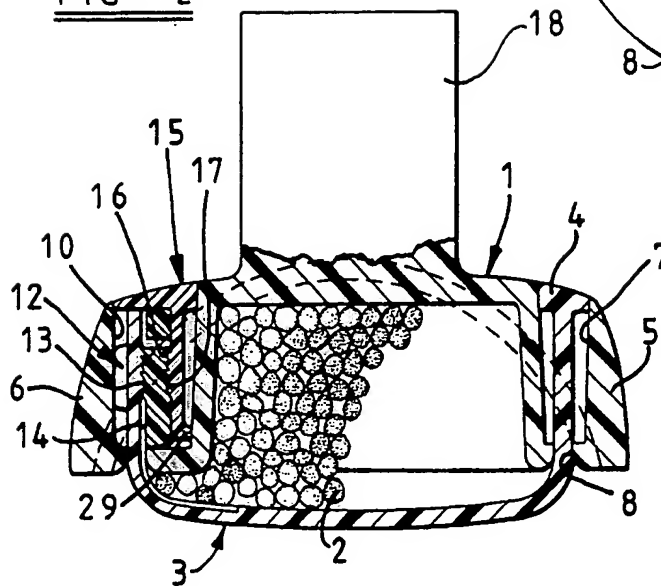
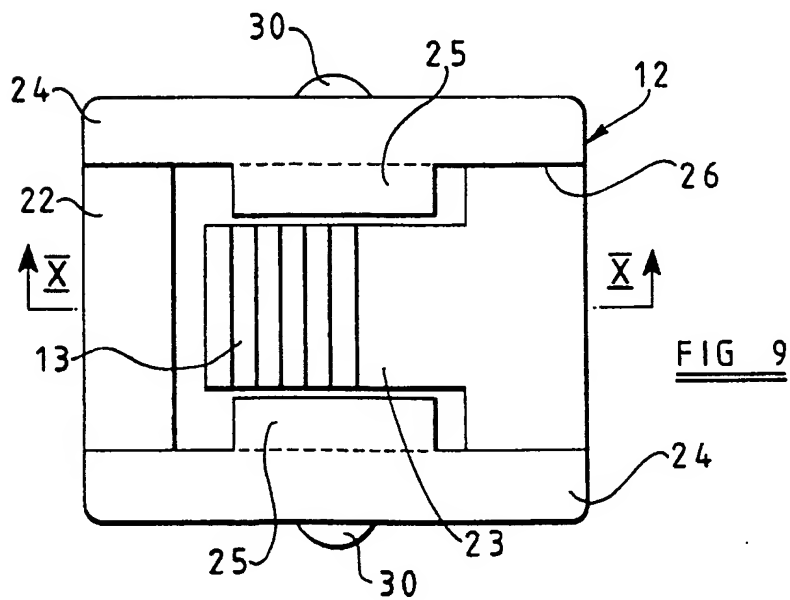
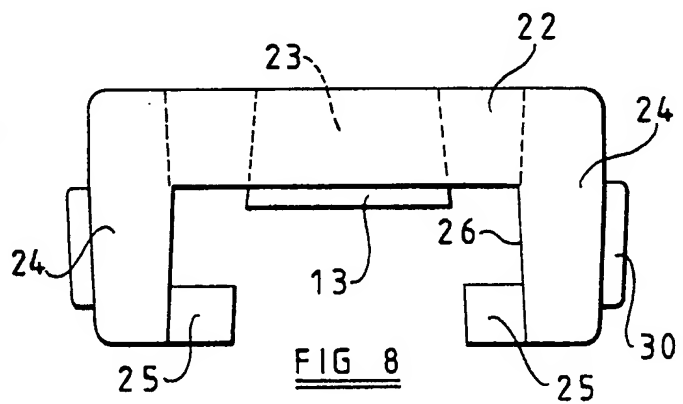
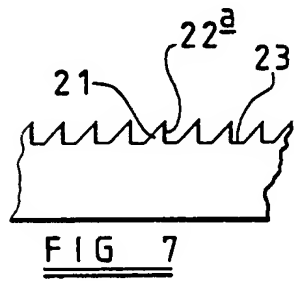
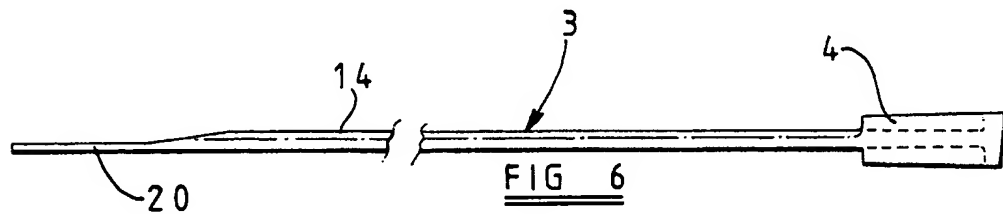
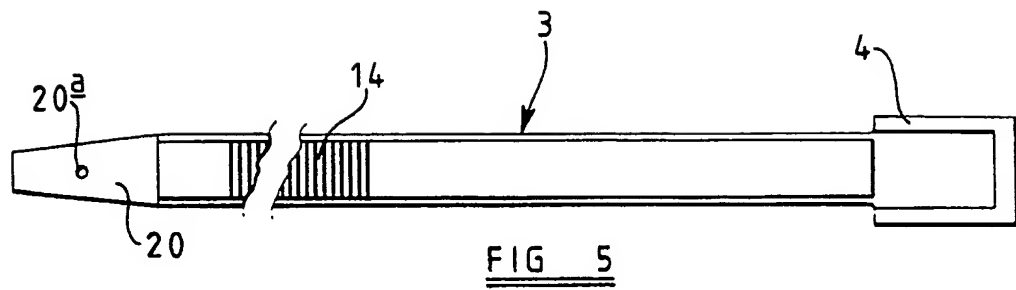


FIG 2





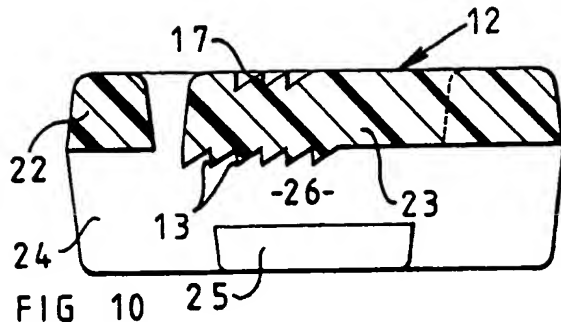


FIG 10

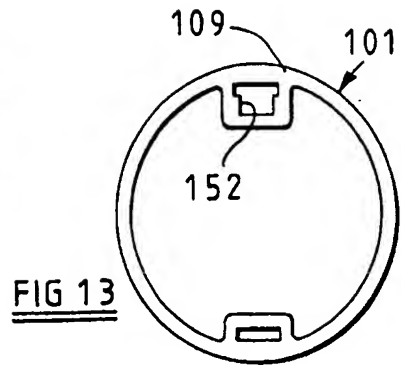


FIG 13

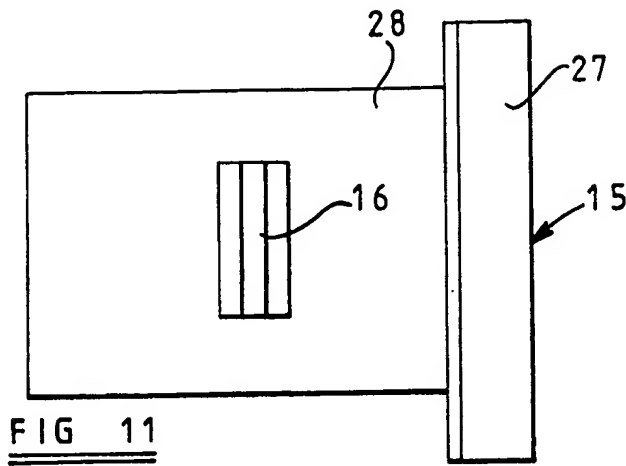


FIG 11

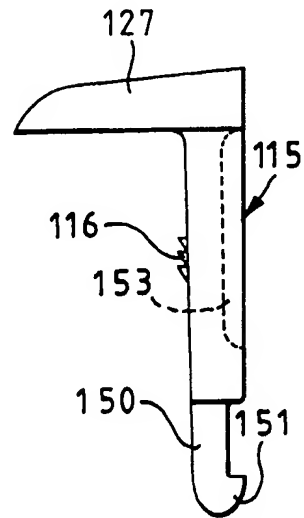


FIG 14

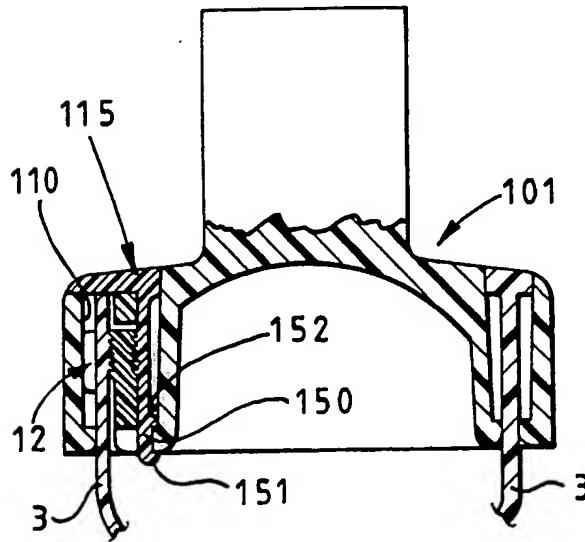


FIG 12

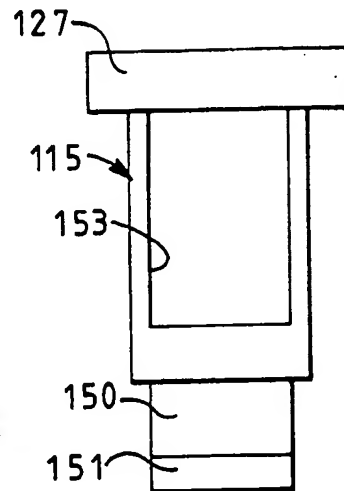


FIG 15

"Mopheads"

The invention relates to mopheads of the type comprising a holder which is attached, or attachable, to a handle, and a multiplicity of flexible strands  
5 (sometimes referred to as "threads") which are secured to the holder so as to hang down freely therefrom. Such mopheads are used, for example, for wet mopping of floors.

It is known for a bundle of strands to be  
10 secured at their middle to a main body part of the holder so that both ends of the strands hang freely, and it is further known for all the strands to be secured by a strap member which is pulled tight across the strands to secure them to the holder. The strap member is  
15 secured to the main body part at one end and has a toothed portion which, as the strap is pulled tight across the bundle of strands, is engaged ratchet-fashion by a toothed retaining device in the body.

Whilst the known arrangement has been  
20 successfully employed it has a limitation relating to the firmness of strand attachment which can be obtained. There is a limit to the strap tension which can be employed before there is a tendency for the toothed portions on the strap and retaining device to slip out  
25 of engagement. The object of the invention is to meet this problem in a manner which enables an increased strap tension to be employed with resultant firmer securing of the bundle of strands of the mophead.

According to the invention there is provided a holder for a mophead comprising a main body part and an elongate strap member having means for attaching it at one end to the main body part, which strap member is  
5 engageable, nearer its opposite end, with a retaining device on the main body part, the strap member and retaining device being provided respectively with cooperating toothed portions whereby the effective length of the portion of the strap member between the  
10 attaching means and the retaining device may be adjusted by drawing the toothed portion of the strap member over the cooperating toothed portion of the retaining device to a selected position, there being provided a locking member which is engageable in a locking position with  
15 the main body part, after the strap member has been drawn to the selected position, to urge the toothed portions of the strap member and retaining device firmly into locking engagement with one another.

The main body part may include a socket for  
20 connecting a handle thereto, and may be generally cup-shaped, the attaching means and retaining device being located on diametrically opposite sides of the cup-shape, the strap member extending across the mouth of the cup-shape.

25 The toothed portion of the retaining device is preferably movable relatively to a fixed part of the device, so that the locking member, when engaged with the main body part, urges the movable toothed portion of

the retaining device into locking engagement with the toothed portion of the strap member. The toothed portion may comprise a tongue integrally connected at one end to the fixed part of the device and free at its  
5 other end, the aforesaid movement of the toothed portion being permitted by resilient deflection of the tongue relatively to the fixed part.

The locking member may be retained in the locking position by interengaging formations, such as  
10 interengaging toothed portions, on the locking member and retaining device respectively.

Alternatively or additionally, the locking member may be retained in the locking position by interengaging formations on the locking member and main  
15 body part. For example, the locking member may be formed with a resilient lug which snaps into engagement with a part of the main body part.

In any of the above arrangements the locking member may be engageable, with a wedging action, in a  
20 recess in the main body part.

In a preferred embodiment according to the invention the retaining device is provided in a slot extending through the main body part, said opposite end of the strap member passing through the slot for  
25 engagement with the retaining device, and the locking member being insertable into the slot to urge the toothed portions of the strap member and retaining device into locking engagement with one another. The

retaining device preferably comprises an element separately formed from the main body part and located within said slot. In this case the retaining device is preferably frictionally retained within the slot in the  
5 main body part.

The retaining device preferably defines a passage through which the strap member may pass, the toothed portion of the retaining device being located to one side of the passage. For example, the retaining  
10 device may be generally channel-shaped.

The aforesaid means for attaching one end of the strap member to the main body part comprises an enlarged head on said one end of the strap member which is received in a recess in the main body part, the strap  
15 member passing through an open end of the recess which is smaller than the enlarged head, whereby the head is retained in the recess.

The invention includes within its scope a mophead comprising a holder of any of the kinds referred  
20 to above in combination with a multiplicity of flexible strands, the strands being secured to the holder in a bundle by being clamped, in the region of the middle of the bundle, between the strap member and the main body part of the holder.

25 The invention will now be more particularly described with reference to the accompanying drawings which illustrate, by way of example, preferred embodiments of the invention. In the drawings:



Figure 1 shows in perspective view a mophead incorporating a holder in accordance with the invention,

Figure 2 is part cross-sectional view generally on the Line II-II in Figure 1,

5            Figures 3 and 4 are respectively bottom and top views of a main body part of the holder,

Figures 5 and 6 are respectively face and edge views of a toothed strap by which the strands of the mophead are secured to the main body part,

10           Figure 7 illustrates, to a larger scale, the tooth form of the toothed strap,

Figures 8 and 9 are respectively end and face views of a toothed retaining clip of the mophead holder,

15           Figure 10 is a cross-sectional view on the Line X-X in Figure 9,

Figure 11 is a face view of a locking member,

Figures 12 and 13 are views respectively corresponding to Figures 2 and 3 but illustrating a modification, and

20           Figures 14 and 15 are side and face views of the locking member of the modification.

As shown in Figure 1, the mophead illustrated includes a holder comprising a domed moulded plastics main body part 1 from which freely hang the ends of a  
25   multiplicity of textile strands or "threads" 2 secured to the body part 1 at their middle by a moulded plastics strap 3. As can be seen from the sectional view of Figure 2 and from Figure 5, the strap 3 has an enlarged

head 4 by which it is secured at one end to the cup-shaped body part 1. The body part 1 is moulded with diametrically opposite edge bosses 5 and 6, and the head 4 of the strap has a tapered shape which fits in a tapered recess 7 moulded in the boss 5 at the upper side of the body 1. In addition to securing the headed end of the strap 3, the head 4 acts as a trim to close off the recess 7 substantially flush with the outer surface of the body part 1.

10                From the recess 7 the strap 3 projects from the lower side of the body part 1 through a rectangular aperture 8, and then extends under tension across the strands 2 before it re-enters the body part 1 through a rectangular aperture 9 in the boss 6. This holds the  
15 strands 2 firmly and securely within the hollow centre of the body 1, and through the aperture 9 the strap 3 passes into a moulded tapering rectangular-section slot 10 in the boss 6. The inner and outer walls of the slot 10 taper slightly towards one another as they extend  
20 downwardly as seen in Figure 2. Within this slot 10 the strap 3 is retained, under tension, by a toothed retaining clip 12, the teeth 13 of which engage with a complementarily-toothed section 14 of the strap 3 in a ratchet-like manner which enables the strap 3 to be  
25 pulled through under a tension which is retained by the toothed engagement.

A locking member 15 is inserted in the slot 10 after the strap 3 has been tensioned. The upper part of

the locking member also acts as a trim to close off neatly the upper part of the slot 10 substantially flush with the outer surface of the body part 1. The locking member 15 has teeth 16 which, as it is inserted, engage complementary teeth 17 on the retaining clip 12 in a ratchet-like manner. This securely retains the locking member 15 in the locking position in which it wedges the clip 12 and strap 3 firmly into engagement within the slot 10. This firmly retains the toothed portion of the strap 3 within the body part 1, permitting considerably higher tensioning of the strap 3 to be employed than has hitherto been the case.

At its upper side the body part 1 has a moulded boss 18 with a central blind bore 19 for mounting the mophead on to a handle (not shown). The bore 19 may be moulded with an internal screw thread for screw-on handle attachment.

As can be seen from Figures 5 to 7, the strap 3 is moulded with an end tongue section 20 with an attachment hole 20a which can be held to pull the strap 3 through the slot 10, and the retaining clip 12, to secure the strands 2 to the body 1. The strands 2, which are typically 50, 75 or 100 in number, for example, are laid on the body part 1 as a complete continuous looped hank through which the strap 3 is threaded before tightening. With the strap held by the end tongue 20 under the required tension, the end of the strap 3 is cut off flush with the body 1. When

tensioned the end portion of the strap is elastically extended, and the cut end therefore contracts when the tension is relieved so that it springs back into the slot 10 as can be seen in Figure 2. This provides  
5 clearance for the flush fitting of the locking member 15 which is now inserted. After the strap 3 has been secured in this manner, the part of the looped hank opposite the strap is cut to separate the hank into the individual secured strands 2 of the mophead.

10           The form of the ratchet-like teeth of the strap 3 and retaining clip 12 is illustrated to a larger scale in Figure 7. Each tooth such as 21 is of triangular cross-section with a trailing "locking" face 22 disposed at right angles to the longitudinal axis of  
15 the strap 3. The teeth 21 have a spacing, as at 23, of approximately half the tooth pitch. A similar tooth form is used for the teeth 16, 17 which retain the locking member 15 in position.

          As can be seen from Figures 8, 9 and 10, the  
20 toothed retaining clip is generally channel-shaped and comprises a backplate 22 moulded with a rectangular central tongue 23 separated from the remainder of the backplate along three sides and integral therewith at one end. The teeth 13 and 17 are moulded on this tongue  
25 23, and the backplate 22 has parallel side flanges 24 each of which has an inwardly projecting lug 25 to define a guide passage 26 which closely receives the strap 3 to ensure that it is engaged by the projecting

ratchet teeth 13, resilient flexing of the tongue 23 enabling this engagement.

The retaining clip 12 is preferably frictionally retained within the slot 10, and to enhance  
5 this frictional retention the sides of the clip may be integrally formed with rounded bosses as indicated at 30 in Figures 8 and 9.

As shown in Figure 11, the locking member 15 has a head 27, which fits the mouth of the slot 10 and  
10 which is moulded integrally with a backplate 28 from which the teeth 16 project. As best seen in Figure 2, the backplate 28 is cut away between the head 27 and a leading end rib 29 which engages the inner tapering wall of the recess 10 so that, as the locking member 15 is  
15 inserted, the backplate 28 is urged towards the retaining clip 12 with a wedging action. The projecting teeth 16 on the locking member thus engage the teeth 17 on the tongue 23 and urge the tongue towards and into firm wedged engagement with the strap 3.

20 The modification of Figures 12 to 15, in which modified parts utilise the earlier reference numerals increased by "100", provides even more secure fixing of the locking member 115. For this purpose the lower end of the locking member 115 is extended at 150 to provide  
25 a resiliently flexible tongue which terminates in a projecting lug 151. As the member 115 is inserted into the slot 110 in the main body part 101 the tongue 150 passes through a rectangular enlargement 152 of the

aperture 109 until the lug 151 projects and snaps below the body 101 as shown in Figure 12. Thus the modification provides snap-in fixing of the locking member 115 to the body part 101, the slot 110 again  
5 being tapered so that the locking member, which may also be slightly tapered, wedges in position. It will be appreciated that in some circumstances the snap-in fixing of the locking member might allow the wedging action to be dispensed with although preferably both are  
10 employed.

The toothed engagements between the strap 3 and the retaining clip 12 on the one hand, and the clip 12 and the locking member 115 on the other hand, are as before. As shown in Figures 14 and 15 the face of the  
15 locking member 115 remote from the teeth 116 is recessed at 153. This provides a reduced wall section on which the teeth 116 are formed with side clearance which allows wall flexure for engagement of the teeth 116 with a ratchet action as the locking member 115 is  
20 fitted. The locking member 15 previously described has a similar recessed formation.

All the components of the mophead other than the strands are conveniently synthetic plastics mouldings. Thus the main body part may be a  
25 polypropylene moulding, and a suitable moulding material for the strap, retaining clip and locking member is Nylon 6. The strands may be of any conventional material, such as cotton or a synthetic material such as

nylon and/or terylene. A 4-ply loosely twisted material is particularly suitable, for example a twist of 1.3 per inch.

Although the engagement between the strap  
5 member and the retaining clip is shown as being provided by serrated teeth which are triangular in cross-section, it will be appreciated that the engaging parts might well be provided with interengaging formations of other shapes. For example, the engaging surfaces might be  
10 formed with spaced studs, ribs or projections of other shapes, and the term "toothed" is therefore to be interpreted broadly, where necessary, so as to encompass such constructions.

CLAIMS

1. A holder for a mophead comprising a main body part and an elongate strap member having means for attaching it at one end to the main body part, which  
5 strap member is engageable, nearer its opposite end, with a retaining device on the main body part, the strap member and retaining device being provided respectively with cooperating toothed portions whereby the effective  
10 attaching means and the retaining device may be adjusted by drawing the toothed portion of the strap member over the cooperating toothed portion of the retaining device to a selected position, there being provided a locking member which is engageable in a locking position with  
15 the main body part, after the strap member has been drawn to the selected position, to urge the toothed portions of the strap member and retaining device firmly into locking engagement with one another.

2. A holder according to Claim 1, wherein the  
20 main body part includes a socket for connecting a handle thereto.

3. A holder according to Claim 1 or Claim 2, wherein the main body part is generally cup-shaped, the attaching means and retaining device being located on  
25 diametrically opposite sides of the cup-shape, the strap member extending across the mouth of the cup-shape.

4. A holder according to any of Claims 1 to 3, wherein the toothed portion of the retaining device is



movable relatively to a fixed part of the device, and wherein the locking member, when engaged with the main body part, urges the movable toothed portion of the retaining device into locking engagement with the  
5 toothed portion of the strap member.

5. A holder according to Claim 4, wherein the toothed portion of the retaining device comprises a tongue integrally connected at one end to the fixed part of the device and free at its other end, the aforesaid  
10 movement of the toothed portion being permitted by resilient deflection of the tongue relatively to the fixed part.

6. A holder according to any of Claims 1 to 5, wherein the locking member is retained in the locking  
15 position by interengaging formations on the locking member and retaining device.

7. A holder according to Claim 6, wherein said interengaging formations comprise toothed portions on the locking member and retaining device respectively.

20 8. A holder according to any of Claims 1 to 7, wherein the locking member is retained in the locking position by interengaging formations on the locking member and main body part.

9. A holder according to Claim 8, wherein the  
25 locking member is formed with a resilient lug which snaps into engagement with a part of the main body part.

10. A holder according to any of Claims 1 to 9, wherein the locking member is engageable, with a wedging

action, in a recess in the main body part.

11. A holder according to any of Claims 1 to 10, wherein the retaining device is provided in a slot extending through the main body part, said opposite end  
5 of the strap member passing through the slot for engagement with the retaining device, and the locking member being insertable into the slot to urge the toothed portions of the strap member and retaining device into locking engagement with one another.

10 12. A holder according to Claim 11, wherein the retaining device comprises an element separately formed from the main body part and located within said slot.

13. A holder according to Claim 12, wherein the retaining device defines a passage through which the  
15 strap member may pass, the toothed portion of the retaining device being located to one side of the passage.

14. A holder according to Claim 13, wherein said retaining device is generally channel-shaped.

20 15. A holder according to any of Claims 12 to 14, wherein the retaining device is frictionally retained within the slot in the main body part.

16. A holder according to any of Claims 1 to 15, wherein said means for attaching one end of the strap  
25 member to the main body part comprises an enlarged head on said one end of the strap member which is received in a recess in the main body part, the strap member passing through an open end of the recess which is

smaller than the enlarged head, whereby the head is retained in the recess.

17. A mophead comprising a holder according to any of the preceding claims in combination with a  
5 multiplicity of flexible strands, the strands being secured to the holder in a bundle by being clamped, in the region of the middle of the bundle, between the strap member and the main body part of the holder.

18. A holder for a mophead substantially as  
10 hereinbefore described with reference to Figures 1 to 11, or Figures 12 to 15, of the accompanying drawings.

**Patents Act 1977**  
**Examiner's report to the Comptroller under**  
**Section 17 (The Search Report)**

Application number

9210183.1

**Relevant Technical fields**

(i) UK Cl (Edition K ) A4F; A4K; E2A

(ii) Int Cl (Edition 5 ) A47L; F16B; A46B

**Databases (see over)**

(i) UK Patent Office

(ii) ONLINE DATABASES: WPI

Search Examiner

T M JAMES

Date of Search

23 JULY 1992

Documents considered relevant following a search in respect of claims

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	GB 0730596 (MORGAN) - see Figures 1 and 2 and page 2 lines 51-101	1-3,17
A	US 4135272 (STEPHENSON) - see Figure 9 and Column 3 lines 48-51	

Category	Identity of document and relevant passages	Relevant to claim(s)

**Categories of documents**

**X:** Document indicating lack of novelty or of inventive step.

**Y:** Document indicating lack of inventive step if combined with one or more other documents of the same category.

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**P:** Document published on or after the declared priority date but before the filing date of the present application.

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